

CLAIMS

1. An optical disc loading apparatus, comprising:
- a main roller installed at an inlet side of an optical disc drive in
5 order to take in/out an optical disc;
- a disc guide installed in the opposite direction of the main roller
with an inserted disc therebetween;
- a disc path control member installed between the main roller
and the inlet side of the drive;
- 10 a small disc stopping member formed at the drive in order to
make an inserted small disc stop at a position mountable onto a
spindle; and
- a large disc stopping member formed at the drive in order to
make an inserted large disc stop at a position mountable onto a spindle;
- 15 wherein the disc path control member is formed so that an
inserted disc contacting to the main roller, the disc guide and the path
control member simultaneously has a proceeding direction different
from that of an inserted disc contacting to the main roller, the disc guide
simultaneously;
- 20 the small disc stopping member has a certain height in order to
stop a disc proceeding while simultaneously contacting to the main
roller and the disc guide, and in order not to stop a disc proceeding
while simultaneously contacting to the main roller, the disc guide and
the path control member; and
- 25 the large disc stopping member has a certain height in order to
lock a disc proceeding while simultaneously contacting to the main roller,

the disc guide and the path control member.

2. The apparatus of claim 1, wherein the disc path control member has a sub roller installed at the end contacting to an inserted
5 disc.

3. The apparatus of claim 2, wherein the sub roller has a hyperboloid shape so as to contact only with the outer circumference of an optical disc.

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4. The apparatus of claim 1, further comprising:
a roller frame, at which the main roller is hinge-joined at the end and the disc path control member is formed at the other end, rotationally hinge-joined with the main frame of the optical disc drive.

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5. The apparatus of claim 4, further comprising:
a contact-pressing spring at which the end is fixed to the main frame of the optical disc drive and the other end is fixed to the roller frame in order to make the main roller act a contact-pressing force on
20 an inserted disc.

6. The apparatus of claim 4, wherein the end of the roller frame at which the disc path control member is installed is bended in order to close the drive inlet when the main roller is separated from an
25 inserted disc.

7. The apparatus of claim 1, wherein the disc path control member includes a cleaning means at a surface contacted to an inserted disc.

5 8. The apparatus of claim 7, wherein the cleaning means is made of cotton flannel.

9. The apparatus of claim 1, wherein the disc guide includes two disc contact ribs vertically long at right angles to a
10 proceeding direction of an optical disc.

10. The apparatus of claim 9, wherein each contact rib has a different height in order to make an inserted optical disc be stopped completely in the small disc stopping member.

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11. The apparatus of claim 1, wherein the disc path control member is elastically combined with the main frame.

12. The apparatus of claim 1, wherein the disc path control
20 member comprises two torsion spring installed at both sides of main frame with its bodies facing each other.

13. An optical disc loading apparatus, comprising:
a roller frame hinge-joined with a main frame;
25 a main roller rotationally connected with the end of the roller frame;

a roller driving means for rotating the main roller;

a sub member installed so as to support the same surface of an inserted optical disc with the main roller;

a contact-pressing means for pressing the optical disc toward
5 the main roller in order to make the inserted optical disc contact to the main roller with a contact-pressing force;

a small disc stopping member formed at the main frame contacted to the outer circumference of an inserted small disc in order to stop the inserted small disc at a position mountable onto a spindle;

10 a large disc stopping member formed at the main frame contacted to the outer circumference of an inserted large disc in order to stop the inserted large disc at a position mountable onto a spindle;

a large disc distinguishing means for distinguishing an inserted large disc; and

15 a roller frame driving means for rotating the roller frame in order to make the large disc inserted by the distinguishing means not to be stopped in the small disc stopping member.

14. The apparatus of claim 13, wherein the sub member is
20 a sub roller.

15. The apparatus of claim 14, wherein the sub roller has a hyperboloid shape so as to be contacted only with the outer circumference of an optical disc.

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16. The apparatus of claim 13, wherein the roller frame

includes:

a main roller arm connected with the main roller; and

a sub member arm formed at the opposite end of the main roller arm and having the sub member;

5 wherein the main roller arm and the sub member arm are formed so that the hinge point of the roller frame is on a straight line of the top surfaces of the main roller and the sub member.

17. The apparatus of claim 16, wherein the contact-
10 pressing means includes:

a hinge protrusion projected from the main frame, at which the bottom end thereof is placed at the hinge point of the roller frame, in order to contact-press the inserted optical disc toward the main roller and the sub member; and

15 a roller frame elastic member, at which the end is fixed to the roller frame and the other end is fixed to the mainframe, for contact-pressing the main roller-inserted optical disc.

18. The apparatus of claim 13, wherein the contact-
20 pressing means includes:

a contact pressing member;

a contact-pressing elastic member, at which the end is fixed to the contact-pressing member and the other end is fixed to the main frame, for pressing the inserted optical disc toward the main roller and

25 the sub member; and

a roller frame elastic member, at which the end is fixed to the

roller frame and the other end is fixed to the main frame, for making the main roller contact-press the optical disc toward the contact-pressing member.

5 19. The apparatus of claim 13, wherein the sub member includes a cleaning means at a surface contacted to an inserted disc.

 20. The apparatus of claim 19, wherein the cleaning means is made of cotton flannel.

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 21. The apparatus of claim 13, wherein the large disc distinguishing means includes a large disc trigger member having:

 a trigger protrusion installed so as to contact with the outer circumference of an inserted large disc before it contacts to the small disc stopping member, and so as not to contact to the outer
15 circumference of an inserted small disc; and

 the trigger protrusion at the end, a hinge joining portion hinge-joined with the main frame and a cam pressing portion formed at the other end opposite to the trigger protrusion with the hinge joining portion
20 therebetween.

 22. The apparatus of claim 21, wherein the roller frame driving means includes:

 a large disc cam member installed so as to move toward a
25 taking in/out direction of an inserted disc by being contacted to the cam pressing portion;

a lack gear formed long at the large disc cam member in the moving direction of the large disc cam member;

a pinion formed so as to be engaged with the lack gear when the cam pressing portion moves the large disc cam member;

5 a driving motor for driving the pinion;

a locking avoidance cam slant for moving the roller frame in order to make the inserted optical disc not be locked in the small disc stopping member when the large disc cam member is moved by the driving motor;

10 a cam separation slant extended-formed at the locking avoidance cam slant in order to make the main roller be separated from the optical disc; and

a large disc cam protrusion formed at the side surface of the roller frame so as to be movable along the cam slant.

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